Grow and garden *with Paddy Madden*

Welcome to the March/April instalment of my regular column focusing on the joys, benefits, wonders and learning opportunities of gardening for teacher and pupil, with a particular focus on sowing and planting.

Suggested Rotation for Five Beds					
Year	Bed 1	Bed 2	Bed 3	Bed 4	Bed 5
One	Potatoes	Peas/Beans	Radishes/Turnips	Garlic/ Onions/ Scallions	Carrots/Beetroot
Two	Peas/Beans	Salads, Radishes/Turnips	Garlic/Onions/ Scallions	Carrots, Beetroot	Potatoes
Three	Salads, Radishes/Turnips	Garlic, Onions/ Scallions	Carrots, Beetroot	Potatoes	Peas, Beans
Four	Garlic, Onions/ Scallions	Carrots, Beetroot	Potatoes	Peas, Beans	Salads, Radishes/Turnips
Five	Carrots, Beetroot	Potatoes	Peas, Beans	Salads, Radishes/Turnips	Garlic, Onions, Scallions

These months are the busiest ones for sowing and planting in the school garden. When using raised beds, however, it's important to understand the basics of crop rotation.

Some plants such as cabbages, onions, garlic and potatoes are hungry feeders, so they remove a lot of nutrients from the soil.

The next crops after them then should be light feeders such as carrots or lettuce.

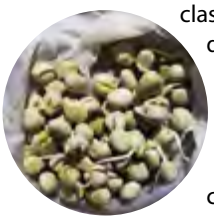
Some plants such as potatoes, those in the allium family (onions, scallions, garlic, leeks, shallots) and those in the brassica family (cabbages, rocket, radish, swede, turnip, oriental salads, broccoli, Brussel sprouts, kale, cauliflower) leave diseases in the soil and creatures that attack the plants. Potatoes are susceptible to attack by eelworms and these will increase if potatoes are continually grown in the same plot. Likewise with brassicas: they can be destroyed by club root disease and alliums by white rot disease. Both these diseases worsen over time if no rotation is practised.

Finally, plants such as peas and beans fix nitrogen in the soil so these could be followed by leafy plants that need lots of nitrogen.

These are specific lesson plans and work ideas for various individual classes:

N.B. *All plants grown indoors should be hardened off outside during the day for a week or two before planting out. Bring them inside before the school closes.*

INFANTS: Sprout mangetout and/or sugar snap peas by wrapping them in damp towelling tissue. If there are 30 in the class, sprout 40 in case some don't germinate. Place the tissue with the peas in a zip lock bag and leave in a dark, warm place for a few days. Give each child a sprouted one to sow in biodegradable pots or modular trays. Water well and place the pots on a tray in a light box facing a sunny window. Sow outside in early April in a large, round growbag, raised bed or large pot under a cane wigwam which was constructed on the planting site. This bag should have drainage holes in the bottom with four by two metre high canes joined with strings 10 centimetres apart. The bed, bag or pot should have had plenty of homemade compost or well-rotted manure added beforehand.



1ST CLASS: Sow an early pea variety such as Kelvedon Wonder in gutter pipes or window boxes in the classroom in March. Half fill the pipes with peat free compost. Sow the seeds five centimetres apart in a zig zag fashion. Cover with more peat free compost. Place a brick under one end of the pipe so that it is slanted and a tray under the other end to collect excess water. When the plants are around 10 centimetres tall bring the gutter pipes outside to the bed which has had garden compost or well-rotted manure added. Slide the peas into trenches the depth of the pipes. Parallel with, and immediately alongside the first planting, plant another gutter pipe of peas. Plant two more gutter pipes of peas 60 centimetres from the first two. Stake with twigs or strings stretched between two canes so that the peas can wrap their tendrils around them for support. *Safety note: Place upturned half litre water bottles on top of canes to prevent eye injury. Water with rainwater preferably. Harvest in June.*

2ND CLASS: 1. Sow beetroot indoors in mid-March in modular trays. (1 module per child). Fill with peat-free compost and sow seeds around five millimetres deep. When seedlings have grown to two centimetres tall, thin to one per module (beetroot seed often produce a few seedlings). Plant out when they are around five centimetres tall in early April, 10 centimetres apart in a seed bed that had compost added in autumn. 2. Sow chives indoors in around 20

centimetre diameter pots filled with compost. Sow around six seeds in pot and cover with vermiculite and cling film. 3. Sow lettuce indoors in the coolest part of the classroom using seed compost made from 50% vermiculite or horticultural sand and 50% compost in biodegradable pots or modular trays in late March. Sow seeds shallowly and only cover lightly with compost. Two seeds per pot/module if lettuce is headed variety. Three seeds if it is cut and come variety. Water and cover with compostable plastic. When the former are around two and a half centimetres high, remove weaker plant. Plant outside in the pots in April about 25 centimetres apart in a bed that had compost added in autumn. Sow more seeds two weeks later for a continuous crop. 4. Sow radishes in a window box. Follow the instructions on the packet. 5. Sow scallions indoors in modular trays in March, 10 seeds per module. Plant out in April. 6. Sow mixed salad leaves in a pot indoors in March.

3RD CLASS: 1. Sow carrots in a dustbin. (They need ten degrees centigrade to germinate so start them off indoors). Sow seeds thinly on top. Water. Thin them to four centimetres apart when they are two and a half centimetres tall and place outside. When tops of roots are about four centimetres wide thin again to seven and a half centimetres between carrot (sowing carrots at this height from the ground deters the carrot root fly. It can't jump higher than a metre!). 2. If the class is using a raised bed dig make sure not to put manure or compost in it now. This must be done in autumn because carrots don't like fresh organic matter. Place a soil thermometer in the soil in late March/April. When a regular 10°C is reached sow the carrots in straight lines about 20 centimetres apart. Use a string tied to two canes to get the lines straight. Along these lines make drills two centimetres deep and sow the seeds thinly about three centimetres apart. Cover and water well. They will take about 17 days to germinate. When the seedlings are about eight centimetres tall and have at least one pair of leaves thin them to about five centimetres apart after watering. Compost the thinned seedlings immediately or carrot flies will be attracted to the scent. They lay eggs in the plot and when they hatch into grubs, they bore holes in the carrots. Prevent them from accessing the plot by inserting wire hoops covered with Bionet over it immediately after sowing. Three or four weeks later thin again because slow to germinate seedlings will have grown in the thinned spaces.

4TH CLASS: Plant chitted early potatoes in a bed in late March. 1. Remove weeds and dig in plenty of home-made compost, vegetable compost or well-rotted horse-manure. 2. Make holes 15 centimetres deep and 30 centimetres apart in the bed. Place a chitted potato into each hole and cover with soil or compost. 3. In April, first earlies planted around St. Patrick's Day will be seen emerging above ground. Protect these from frost with fleece, newspapers or covering them with soil. 4. When the potato stems are about 23 centimetres high cover the stems with soil leaving the top five centimetres exposed to the light. You will end up with mounds along the rows. This process is called "earthing up". It prevents the tubers from turning green and poisonous. It also helps to increase the crop. Continue covering the bed with old newspapers or fleece if frost is forecast. 5. Later in the month, if space is available this class could grow a blight free maincrop potato such as Sapro Mira. Plant these 30 centimetres apart in rows 60 centimetres apart and 12 to 15 centimetres deep. They will be ready to harvest between 15 and 20 weeks after planting. 6. If no raised bed is available, tubers can be planted in hessian bags, refuse bags, recycled bags or potato grow bags.

5TH CLASS: Around St. Patrick's Day plant 3 potatoes in each bag. Bag 1 - Soil only (Control). Bag 2 - Soil and school compost - 50/50; Bag 3 - Soil and peat-free compost - 50/50; Bag 4 - Soil and soil-based compost e.g. John Innes No.3 - 50/50. Manage growth as in 4th class above. If wheat was sown in the spring feed it with an organic fertilizer high in nitrogen.

6TH CLASS: 1. In April, place the deterrents mentioned in the January/February issue inside each pot rim and around a lettuce plant: Monitor carefully over the course of three weeks. 2. In March/early April plant 5 strawberries in a metre long window box in which 75% peat free compost and 25% John Innes No. 2 compost has been added.

ALL CLASSES: Study tadpoles, bumblebees, solitary bees, molluscs, primroses. Plant bare-rooted trees and shrubs.

Links to further learning on gardening activities

SOWING MANGETOUT PEAS: ***bit.ly/37p55yc***
GROWING CARROTS IN A BIN: ***bit.ly/3i9OtN4***
PLANTING POTATOES: ***bit.ly/36qqd6V***
and ***bit.ly/3q97R0W***
SOWING PEAS IN A GUTTER PIPE: ***bit.ly/3idGA9j***
A FAIR TEST ON POTATO GROWTH: ***bit.ly/3u1gOLd***
MOLLUSCS: ***bit.ly/3CK47IC***
and ***bit.ly/3ImS45i***
CARING FOR TADPOLES: ***bit.ly/3q6iP7K***
BUMBLEBEES: ***bit.ly/3q8UxKj***
SOLITARY BEES: ***bit.ly/3tePhqj***.

Translations

Biodegradable: In-bhithmhillte
Gutter pipe: Píopa gáitéir
Deterrents: Baic
Chit: Péac

PADDY MADDEN was a primary teacher and lectured in SESE for many years in the Marino Institute of Education. He established the first school wildlife garden in Ireland in 1984. His book, *Go Wild at School* has been reprinted three times. He established a new website last year with Des Murtagh: www.engagewithnature.